

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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Serial No: 10/613,002  
Filed: July 2, 2003  
Title: DISPERSE AZO DYE MIXTURES  
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Art Unit: 1714  
Examiner: Patrick Dennis Niland

Hon. Commissioner of Patents & Trademarks  
Washington, D. C. 20 231

DECLARATION (Rule 132)

Sir:

I, Adrian Murgatroyd from Rossendale, UK, declare: I am a Chemical Engineer and a citizen of the United Kingdom, residing at Wed 9, 65929 Frankfurt am Main, Federal Republic of Germany.

Since completing my studies at the University of Exeter in the United Kingdom, I have been employed as a textile technician by Tootal Limited, Manchester, UK and as a development manager by ICI (subsequently Zeneca), Manchester, UK. The textile activities of Zeneca were taken over by BASF Aktiengesellschaft, Ludwigshafen, Germany, where I worked as a product manager and as a development manager. In October 2000 BASF transferred its activities in the textile dyestuff field to DyStar and since then I have been employed by DyStar Textilfarben GmbH & Co. Deutschland KG in Frankfurt, Germany as a product development manager for disperse dyes.

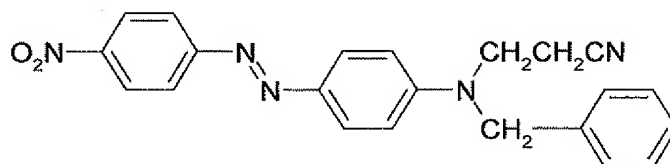
I have had adequate professional experience in the field to which patent application Serial No. 10/613,002, filed July 2, 2003, pertains and which was filed by Manfred Hoppe, Kiyoshi Himeno and Ryouichi Sekioka..

I further declare:

In order to demonstrate that the dyestuff mixtures according to the present application are not obvious over the teachings of the prior art the tests described below have been carried out under my personal guidance and supervision.

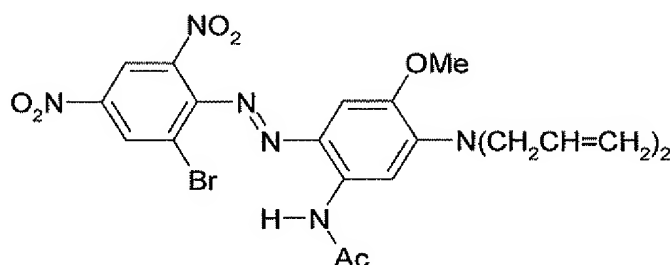
## I. DYESTUFFS AND DYESTUFF MIXTURES

1. Dyestuff 1 of the formula



corresponding to dyestuff of the formula (Ia) of Serial No. 10/613,002

2. Dyestuff 2 of the formula



corresponding to the Br-version of the dyestuff of formula (IIh) of Serial No. 10/613,002

3. Dyestuff Mixture A comprising 5% by weight of Dyestuff 1 and 95% by weight of Dyestuff 2.

4. Dyestuff Mixture B comprising 50% by weight of Dyestuff 1 and 50% by weight of Dyestuff 2.

5. Dyestuff Mixture C comprising 60% by weight of Dyestuff 1 and 40% by weight of Dyestuff 2.

## II. PRODUCING OF THE DYEINGS

Dyeings of each of Dyestuff 1 and 2 and Dyestuff Mixtures A to C were produced using a conventional exhaustion process as follows:

Substrate: 5,0 g of woven Polyester microfibre (MP1)

Liquor ratio: 1:12

pH :	4,5 (acetic acid /sodium acetate)
Levelling agent:	1.0% by weight of Levegal DLP (supplier BASF)
Dispersing agent:	1.0% by weight of Avolan IS (supplier BASF)
Temp. x Time:	130°C x 60 min. (90 -- 130°C: 1,0°C/min.)
Aftertreatment:	Reduction clear

### III. DETERMINATION OF THE BUILD UP PROPERTIES

The color depths of the dyeings obtained according to II above were determined by measuring their remission in the visible range of from 400 to 700 nm and determining their overall remission, INTEG value, which is based on K/S value (Kubelka-Munk function) and described below.

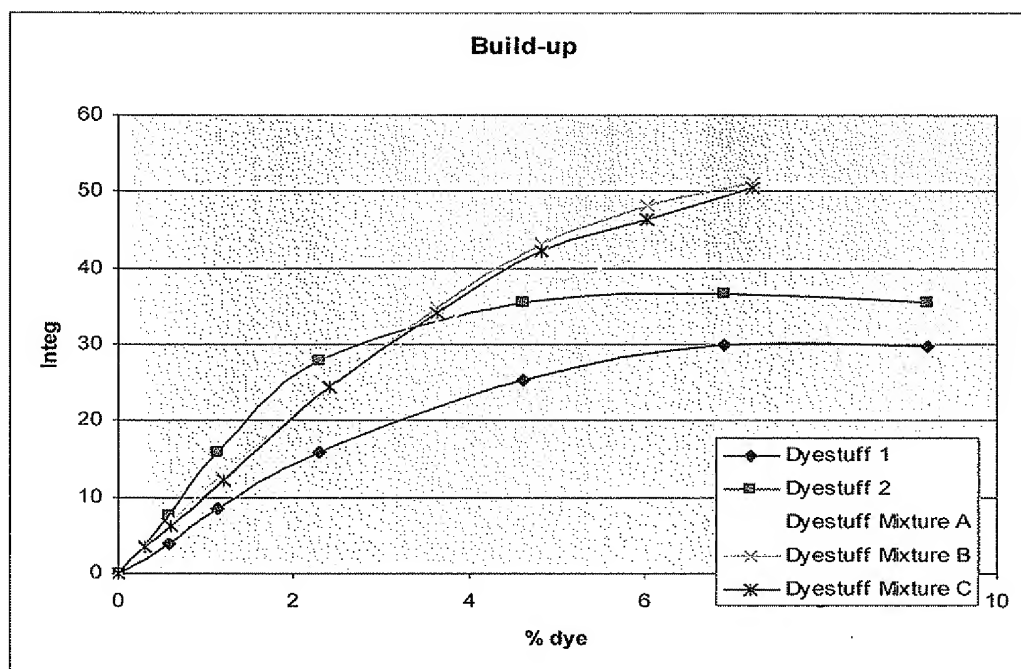
$$\text{INTEG value} = \sum_{\lambda=400}^{\lambda=700} I_{\lambda} \cdot K/S_{\lambda} \cdot (x_{\lambda} + y_{\lambda} + z_{\lambda})$$

$I_{\lambda}$  : the spectral energy distribution of Illuminant

$x_{\lambda}$  ,  $y_{\lambda}$  ,  $z_{\lambda}$  : the color-matching functions

### IV. RESULTS

The results obtained are shown on the following the build-up chart:



On a purely mathematical basis, the build-up curves for the Dyestuff Mixtures A to C would be expected to lie in between the curves for the individual Dyestuffs 1 and 2 (which is the behaviour in the initial linear section). However the actual build-up of the mixtures is superior, reaching significantly higher maximum depth of shade than the individual component Dyestuffs 1 and 2. This improvement could not at all be foreseen for a person skilled in the art and was thus unexpected and surprising.

I further declare that I understand the contents of this Declaration, that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed at Frankfurt

This *28<sup>th</sup>* day of *January 2008*

.....*A. Murgatroyd*.....  
(Adrian Murgatroyd)